UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/050,237	01/15/2002	David Ben-Eli	884.647US1	6370

21186	7590	07/08/2004

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ART UNIT	PAPER NUMBER
2684	

DATE MAILED: 07/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _15 January 2002_.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-31_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-31_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35

U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2.   Claims 1 and 11-12 are rejected under 35 U.S.C. 102(b) as being

anticipated by Hwang (Hwang et al.; US Patent No.: 6,161,022 A).

Regarding claim 1, Hwang teaches of a mobile communicator (column 1,

lines 16-17) and a method (column 1, lines 12-23) comprising: a search receiver

to search for a base station using a search window size that adapts over time

based on a changing channel condition between the base station and the mobile

communicator (column 2, lines 21-26; where the "changing channel condition"

depends on the location or movement of the mobile station).

Regarding claim 11, Hwang teaches all the limitations of claim 1. In

addition, Hwang teaches where: the search receiver searches for multiple base

stations using corresponding search window sizes that adapt over time based on

changing channel condition between each corresponding base station and the

mobile communicator (figure 4, column 6, e.g., "Prem. Win Size").

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for

all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described
> as set forth in section 102 of this title, if the differences between the subject matter sought to
> be patented and the prior art are such that the subject matter as a whole would have been
> obvious at the time the invention was made to a person having ordinary skill in the art to which
> said subject matter pertains. Patentability shall not be negatived by the manner in which the
> invention was made.

4.   Claims 2-9 and 13-31 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Hwang in view of Zhong (Zhong Lizhi; US Patent No.:

6,526,029 B1).

Regarding claim 2, Hwang teaches all the limitations of claim 1.

Hwang does not teach where: the search receiver uses a first search

window size to search for the base station during normal operation and changes

to a second, larger search window size to search for the base station when

received energy is detected outside of the first search window size for the base

station.

In related art concerning a search scheme for receivers in mobile

communications systems, Zhong teaches where: the search receiver uses a first

search window size to search for the base station during normal operation

(column 2, line 30-34; "normal variations" corresponds to "normal operation") and

changes to a second, larger search window size to search for the base station

when received energy is detected outside of the first search window size for the

base station (column 2, lines 51-53 and lines 59-64; where "larger variations"

correspond to "energy detected outside of the first search window size").

It would have been obvious to a one of ordinary skill in the art at the time the invention was made to combine Hwang's adaptable search size window with Zhong's observation of first and second window size as an alternative solution to avoid termination of communication in a communication system.

Regarding claim 3, Hwang in view of Zhong teaches all the limitations of claim 2. Zhong further teaches where: the first search window size is selected to encompass a majority of possible delay spread conditions between the base station and the mobile communicator (column 2, lines 27-34; where it is inherent in the art to aim for a window that encompasses a majority possible of delay spread conditions).

Regarding claim 4, Hwang teaches all the limitations of claim 1. Hwang also teaches where the search receiver includes: a searcher having a variable size search window (column 1, line 63-65 and column 3 lines 13-14; e.g., "adjusting a size of a BTS search window"); and a search window size controller to control the search window size of the searcher (column 3, lines 13-15; where a controller is an inherent part of an a variable search window size method), Zhong teaches where the search window size controller to occasionally change the search window size of the searcher to a full search window size for use in determining a present channel condition between the base station and the mobile communicator (column 2, lines 51-53 and lines 59-64; where "variations" correspond to "channel conditions").

Regarding claim 5, Hwang in view of Rick and further in view of Popovic teach all the limitations of claim 4. Hwang further teaches where the search

window size controller determines a subsequent search window size for the

searcher based on the present channel condition (figure 4; where service radius;

distance, determines channel conditions; e.g., far, close).

Regarding claim 6, Hwang in view of Zhong teach all the limitations of

claim 4. Hwang further teaches where: the full search window size is related to

an expected worst case delay spread in the channel between the base station

and the mobile communicator (column 6, lines 47-54; where the boundaries of

the maximum serviceable radius corresponds to the worst case delay spread).

Regarding claim 7, Hwang in view of Zhong teaches all the limitations of

claim. Zhong further teaches where: the search window size controller estimates

a delay spread of the channel between the base station and the mobile

communicator and determines a subsequent search window size for the searcher

based on the estimated delay spread (column 2, lines 17-21 and 26-28).

Regarding claim 8, Hwang in view of Zhong teaches all the limitations of

claim 7. Zhong further teaches where: the search window size controller

determines a smallest search window size that encompasses all significant paths

within the estimated delay spread of the channel (column 3, lines 59-67; e.g., "

the size of the second search window is made as small as possible to save

processor time, but not so small as to be unable to follow the detection...")

Regarding claim 9, Hwang in view of Zhong teaches all the limitations of

claim 7. Hwang also teaches where: the search window size controller selects

the subsequent search window size from a plurality of predetermined search

window sizes (figure 1, column 6; e.g., "Prem. Win Size").

Regarding claim 13, Hwang in view of Zhong teaches all the limitations of claim 12. In addition, Zhong teaches where adapting a size of the search window includes: occasionally searching for the base station using a full search window size (column 2, line 30-34; where a first window that handles "normal variations" corresponds to a "full size window"); and changing the search window size based on a result of one or more full search window searches (column 2, lines 59-64).

Regarding claim 14, Hwang in view of Zhong teaches all the limitations of claim 12. In addition, Zhong teaches wherein: adapting a size of the search window includes: estimating a delay spread of a channel between the base station and the mobile communicator; and selecting a smallest search window size that encompasses the estimated delay spread (column 3, lines 59-67).

Regarding claim 15, Hwang in view of Zhong teaches all the limitations of claim 12. In addition, Zhong teaches where adapting a size of the search window includes: determining whether receive energy has been detected outside a first search window size (column 2, lines 51-53 and lines 59-64; where "larger variations" correspond to "energy detected outside of the first search window size"); and changing the size of the search window to the first search window size when receive energy has not been detected outside the first search window size (column 2, line 30-34; "normal variations" corresponds to "energy has not been detected outside the first search window size").

Regarding claim 16, Hwang teaches of a method for searching for a base station from a mobile communicator (column 1, lines 12-23), Zhong teaches comprising: searching for the base station using a first search window size

(column 2, line 30-34); occasionally checking for significant received energy outside of the first search window size for the base station (column 2, lines 51-53 and lines 59-64; where "larger variations" correspond to "energy detected outside of the first search window size"; and searching for the base station for a predetermined period using a second search window size that is greater than the first search window size when significant received energy is detected outside of the first search window size during occasionally checking (column 2, lines 51-53 and lines 59-64 and column 2, lines 27-29; where the checking corresponds to checking the delay spread).

Regarding claim 17, Hwang in view of Zhong teaches all the limitations of claim 16. In addition, Zhong teaches where occasionally checking for significant received energy outside of the first search window size includes searching for the base station using a full search window size that is greater than the first search window size (column 2, lines 51-53 and lines 59-64).

Regarding claim 18, Hwang in view of Zhong teaches all the limitations of claim 17. In addition, Hwang teaches where the first search window size is a size that is expected to encompass a majority of possible delay spread conditions in a channel between the base station and the mobile communicator (column 2, lines 27-34; where it is inherent in the art to aim for a window that encompasses a majority possible of delay spread conditions); and Zhong teaches where the full search window size is a size that is expected to encompass a worst case delay spread condition in the channel between the base station and the mobile

communicator (column 6, lines 47-54; where the boundaries of the "maximum serviceable radius" corresponds to the "worst case delay spread").

Regarding claim 19, Hwang in view of Zhong teaches all the limitations of claim 17. In addition, Zhong teaches where the second search window size is equal to the full search window size (column 2, lines 29-34; where if no dramatic variations occur, the second window is equal to the first window).

Regarding claim 20, Hwang in view of Zhong teaches all the limitations of claim 17. In addition, Zhong teaches where the second search window size is less than or equal to the full search window size (column 7, lines 11-12).

Regarding claim 21, Hwang in view of Zhong teaches all the limitations of claim 16. In addition, Zhong teaches where occasionally checking includes checking at regular intervals (column 3, lines 1-5; where "constant timing" refers to "regular intervals").

Regarding claim 22, Hwang in view of Zhong teaches all the limitations of claim 16. In addition, Zhong teaches where occasionally checking includes estimating a delay spread for the channel between the base station and the mobile communicator (column 2, lines 26-28); and the second search window size is determined based upon the estimated delay spread (column 2, lines 6-8).

Regarding claim 23, Hwang in view of Zhong teaches all the limitations of claim 16. In addition, Hwang teaches of a mobile communicator that is programmed to search for one or more base stations using the method of claim 16 (column 1, lines 16-17).

Regarding claim 24, Hwang a method for searching for a base station

from a mobile communicator, comprising: first searching for the base station

using a large search window size (column 3, line 60-66; where the first window is

a full size window); determining a new search window size to search for the base

station based on a result of the first searching; and second searching for the

base station using the new search window size (column 3, lines 9-12; where the

"continue to detect reverse-link signals" includes a first and second searching).

Regarding claim 25, Hwang in view of Zhong teaches all the limitations of

claim 16. In addition, Zhong teaches where second searching includes searching

for the base station using the new search window size for a first

time duration (column 3, lines 12-18; where the second searching uses the new

window, "second window").

Regarding claim 26, Hwang in view of Zhong teaches all the limitations of

claim 25. In addition, Zhong teaches repeating first searching, determining, and

second searching after the first time duration has elapsed (column 4, lines 31-

37).

Regarding claim 27, Hwang in view of Zhong teaches all the limitations of

claim 26. In addition, Zhong teaches adapting a length of the first time duration

over time based on a predetermined criterion (column 4, lines 31-37; e.g.,

"threshold").

Regarding claim 28, Hwang in view of Zhong teaches all the limitations of

claim 24. In addition, Hwang teaches where determining a new search window

size includes selecting one of a plurality of predetermined search window sizes (figure 4, column 6).

Regarding claim 29, Hwang in view of Zhong teaches all the limitations of claim 24. In addition, Zhong teaches where determining a new search window size includes determining a size that will encompass a delay spread associated with the base station (column 2, lines 17-29).

Regarding claim 30, Hwang in view of Zhong teaches all the limitations of claim 24. In addition, Zhong teaches where determining a new search window size includes: determining whether significant received energy was detected during the first searching that was outside of a first search window (column 2, lines 59-64), the first search window having a size that is smaller than the large search window size (column 2, lines 51-56; where the second window is larger than the first window; therefore, the first window is smaller); and setting the new search window size equal to the size of the first search window when significant received energy was not detected outside of the first search window (column 2, line 30-34; "normal variations" corresponds to "significant received energy was not detected outside the first search window size").

Regarding claim 31, Hwang in view of Zhong teaches all the limitations of claim 24. In addition, Hwang teaches of a mobile communicator that is programmed to search for one or more base stations using the method of claim 24 (column 5, lines 51-58).

5.   Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Hwang in view of Zhong as applied to claim 9 above, and further in view of (Rick

et al.; US Patent No.: 6,738,438 B2).

Regarding claim 10, Hwang in view of Zhong teaches all the limitations of

claim 4.

Hwang in view of Zhong does not teach of a quality measure unit to

determine a quality measure for the base station using an output of the searcher.

In related art concerning a parameter estimator with dynamically variable

search window size and/or placement, Rick teaches of a quality measure unit to

determine a quality measure for the base station using an output of the searcher

(column 10, lines 10-28; were the TOA, energy per chip, interference power

density are examples of quality measurements).

It would have been obvious to a one of ordinary skill in the art at the time

the invention was made to combine Hwang's adaptable search size window and

Zhong's observation of first and second window size with Rick's quality of

measure unit in order to obtain quality measurements that can be used as

reference to maintain good communication between the mobile station and the

base station.

Conclusion

6.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure .

US Patent No.: 6,370,397 B1; refers to search window delay tracking
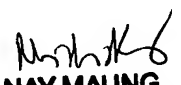
CDMA communication systems.

Pub No.: 2003/0114172 A1; refers to a method and apparatus for reducing

pilot search times utilizing mobile station location information.

Any inquiry concerning this communication or earlier communications from

the examiner should be directed to Angelica Perez whose telephone number is

703-305-8724. The examiner can normally be reached on 7:15 a.m. - 3:55 p.m.,

Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the

examiner's supervisor, Nay Maung can be reached on 703-308-7745. The fax

phone numbers for the organization where this application or proceeding is

assigned are 703-872-9314 for regular communications and for After Final

communications.

Any inquiry of a general nature or relating to the status of this application
or proceeding should be directed to the TC 2600's customer service number is
703-306-0377.

Angelica Perez
(Examiner)

NAY MAUNG
SUPERVISORY PATENT EXAMINER
Art Unit 2684

June 17, 2004